

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-52. (Cancelled)

53. (Currently amended) A method of producing a ~~product~~ saccharide sialyllactose, wherein the ~~product~~ saccharide is an oligosaccharide or glycolipid, the method comprising

i) permeabilizing a ~~microorganism or plant~~ *E. coli* cell wherein the cell comprises:

a) a heterologous ~~accessory enzyme for forming a nucleotide sugar~~ CMP-sialic acid synthetase that forms CMP-sialic acid; and

b) a heterologous ~~glycosyltransferase~~ α 2,3-sialyltransferase that catalyzes the transfer of a sialic acid moiety from CMP-sialic acid to lactose to produce the sialyllactose;

ii) contacting the permeabilized ~~microorganism or plant~~ cell with an exogenous acceptor saccharide, wherein ~~lactose~~ the heterologous ~~glycosyltransferase~~ catalyzes the transfer of a sugar from the nucleotide sugar to the acceptor saccharide to produce the ~~product~~ saccharide; and

iii) allowing formation of the nucleotide sugar the CMP-sialic acid by the heterologous CMP-sialic acid synthetase and transfer of a sugar the sialic acid moiety from the nucleotide sugar CMP-sialic acid to the acceptor saccharide exogenous lactose by the α 2,3-sialyltransferase, to form thereby forming the product saccharide sialyllactose.

54. (Cancelled)

55. (Currently amended) The method of claim 53, wherein the heterologous glycosyltransferase α 2,3-sialyltransferase is endogenous to the cell and is produced by the cell at an elevated level compared to a wild-type cell.

56. (Original) The method of claim 53, wherein the product saccharide is produced at a concentration of at least about 1 mM.

57. (Previously presented) The method of claim 53, wherein the cell is permeabilized using 1% Xylene.

58-60. (Cancelled)

61. (Currently amended) The method of claim 53, wherein the heterologous CMP-sialic acid synthetase-accessory enzyme and the glycosyltransferase heterologous α 2,3-sialyltransferase are expressed as a fusion protein.

62-65. (Cancelled)

66. (Original) The method of claim 53, wherein the cell forms the nucleotide sugar at an elevated level compared to a wild-type cell.

67. (Original) The method of claim 66, wherein the elevated level of nucleotide sugar results from a deficiency in the ability of the cell to incorporate the nucleotide sugar into a polysaccharide normally produced by the cell.

68. (Original) The method of claim 67, wherein the deficiency is due to a reduced level of a polysaccharide glycosyltransferase activity.

69-72. (Cancelled)

73. (Previously presented) The method of claim 53, further comprising the step of detecting the product saccharide.

74. (Previously presented) The method of claim 53, further comprising the step of isolating the product saccharide.